POINT JUDITH POND

NARRAGANSETT AND SOUTH KINGSTON, RHODE ISLAND

SMALL BOAT NAVIGATION PROJECT

INITIAL APPRAISAL REPORT

DEPARTMENT OF THE ARMY

NEW ENGLAND DIVISION, CORPS OF ENGINEERS

WALTHAM, MASSACHUSETTS

MAR 1985

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INTRODUCTION

This Initial Appraisal Report is the result of a preliminary engineering and economic feasibility study of navigation improvements in Point Judith Pond at Narragansett and South Kingstown, Rhode Island. It was requested by the towns of Narragansett and South Kingstown (letters of May 20,1983 and March 6, 1984, respectively) that the Corps of Engineers study the feasibility of Federal participation in improvements to navigation conditions in Point Judith Pond under existing continuing authorities for small navigation projects.

Point Judith Pond is located on the central Rhode Island coastline immediately inland from the Point Judith Harbor of Refuge and about 40 miles south of Providence (See Figure 1). It is home to the fastest growing commercial fishing fleet in New England. The scope of this report was limited to investigating additional navigation channels necessary to alleviate crowded conditions at the berthing and offloading areas and to provide access to newly developing areas needed to accomodate the rapid expansion of this fleet.

STUDY AUTHORITY

This Initial Appraisal Report was prepared and is submitted under the authority and provisions of Section 107 of the 1960 River and Harbor Act, as amended.

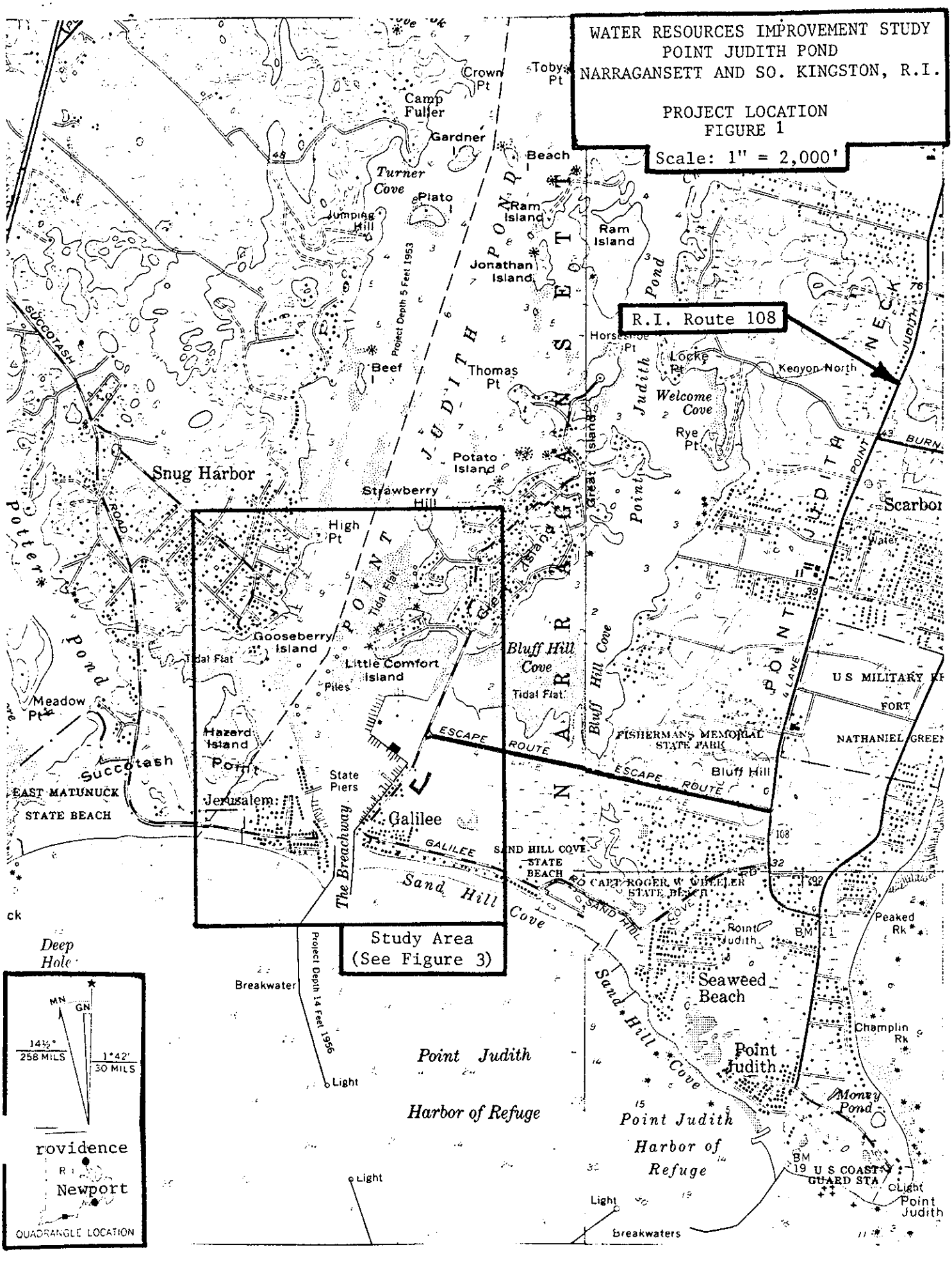
EXISTING CONDITIONS AND PROBLEMS

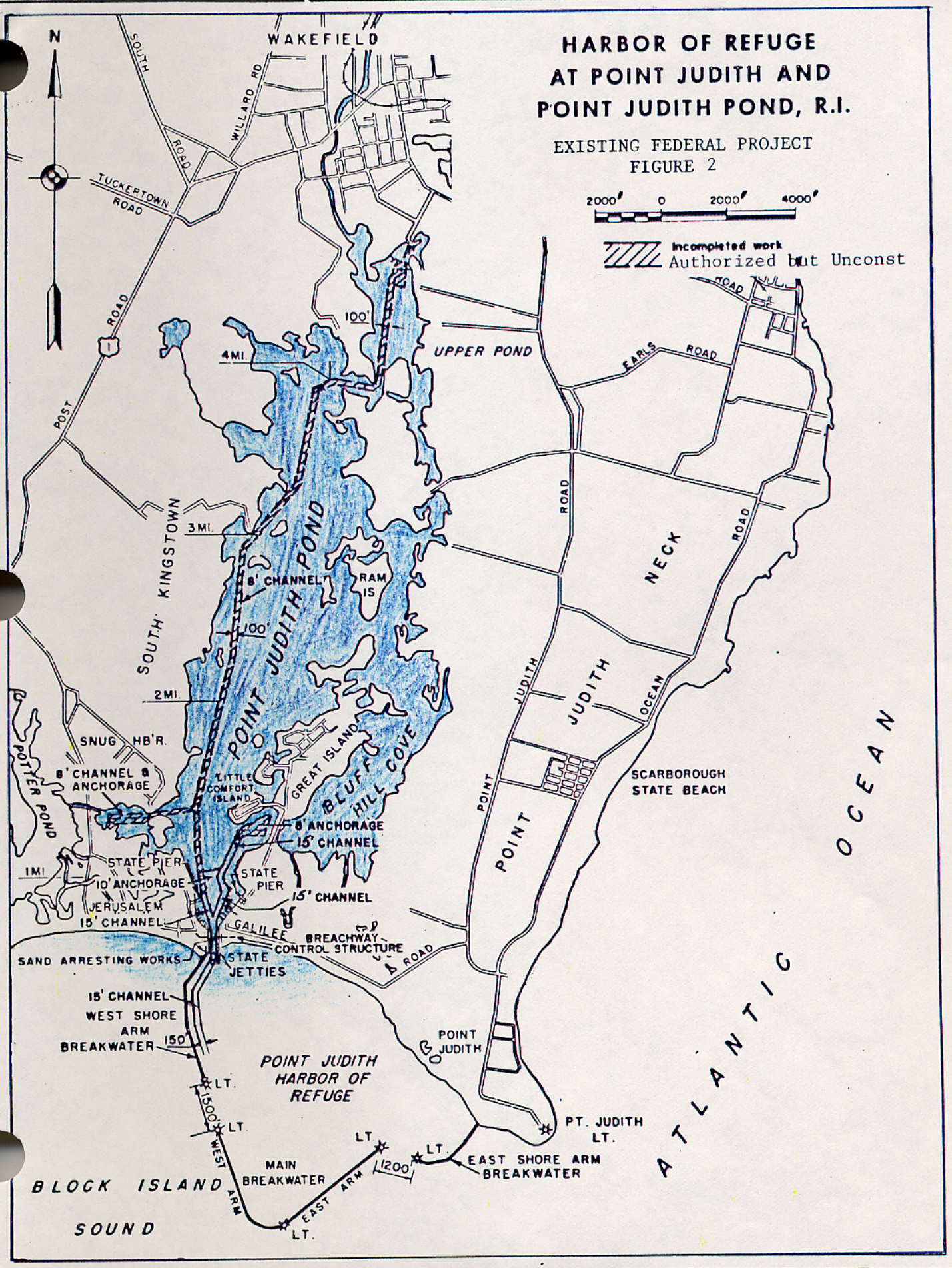
There is an existing Federal project in Point Judith Pond consisting, in part, of a 15 foot deep by 150 foot wide east branch channel which terminates at the west bulkhead at Galilee (located along the east side of Point Judith Pond). The project also includes a 15 foot deep by 150 foot wide west branch channel that terminates at the State Pier in Jerusalem (located along the west side of the pond) and a 6 foot deep by 100 foot wide inner channel that extends about 3000 feet northward to Snug Harbor and then continues about 3.5 miles to the head of the pond at Wakefield.

There are other portions of the Federal project within the pond which have been authorized but are unconstructed. Some of these may have to be deauthorized prior to construction. For a complete plan of the Federal project see Figure 2.

The primary problem in Point Judith Pond is that the commercial fleet has expanded to the point where all the available berthing facilities are utilized to their fullest extent. In order for the fleet to experience continued growth, new areas must be made available for development. Another serious problem is the lack of adequate offloading facilities to handle existing fish catches. This results in delays as vessels are forced to wait up to 48 hours to offload their catch. In addition, because of the narrowness of the west bulkhead channel the larger vessels (60 to 95 foot lengths) often go aground as they attempt to maneuver into offloading facilities or berths and around other vessels.

On the Galilee (east) side of the pond the only remaining area capable of accomodating fleet expansion is the North Basin area. If this area were made available by dredging and berth construction, then the shallow draft inshore vessels could be relocated to this area thus freeing areas along the west bulkhead for expansion of offloading facilities and making more deep draft berths available for the offshore fleet expansion.


WATER RESOURCES IMPROVEMENT STUDY
POINT JUDITH POND
NARRAGANSETT AND SO. KINGSTON, R.I.
PROJECT LOCATION
FIGURE 1
Scale: 1" = 2,000'
R.I. Route 108
Study Area
(See Figure 3)
Crown Pt
Toby Pt
Camp Fuller
Gardner
Beach
Turner Cove
Plato
Jumping Hill
Ram Island
Jonathan Island
Project Depth 5 Feet 1953
Beef
Thomas Pt
Horsehead Pt
Locke Pt
Kenyon North
Welcome Cove
Rye Pt
Potato Island
Great Island
Point Judith
Snug Harbor
Strawberry Hill
High Pt
Tidal Flat
Gooseberry Island
Little Comfort Island
Piles
Bluff Hill Cove
Meadow Pt
Hazard Island
Point
State Piers
Jerusalem
Galilee
EAST MATUNUCK STATE BEACH
The Breachway
Sand Hill Cove
SAND HILL COVE STATE BEACH
CAPT. ROGER W. WHELLER STATE BEACH
FISHERMAN'S MEMORIAL STATE PARK
Bluff Hill
ESCAPE ROUTE
U S MILITARY
FORT
NATHANIEL GREEN
Point Judith
Peaked Rk
Champlin Rk
Seaweed Beach
Money Pond
Deep Hole
Breakwater
Project Depth 14 Feet 1956
Light
Harbor of Refuge
U S COAST GUARD STA
Light Point Judith
breakwaters
MN
GN
14½°
258 MILS
1°42'
30 MILS
rovidence
R I
Newport
QUADRANGLE LOCATION


HARBOR OF REFUGE
AT POINT JUDITH AND
POINT JUDITH POND, R.I.
EXISTING FEDERAL PROJECT
FIGURE 2
2000' 0 2000' 4000'
Incompleted work
Authorized but Unconst
N
WAKEFIELD
SOUTH
WILLARD RD
ROAD
TUCKERTOWN
ROAD
POST
ROAD
1
100'
4MI.
UPPER POND
EARLS
ROAD
ROAD
3MI.
SOUTH KINGSTOWN
POINT JUDITH POND
8' CHANNEL
RAM
IS
100'
NECK
ROAD
ROAD
2MI.
SNUG HB'R.
POTTER POND
8' CHANNEL &
ANCHORAGE
LITTLE
COMFORT
ISLAND
GREAT ISLAND
BLUFF
HILL COVE
8' ANCHORAGE
15' CHANNEL
JUDITH
JUDITH
OCEAN
POINT
SCARBOROUGH
STATE BEACH
1MI
STATE PIER
10' ANCHORAGE
JERUSALEM
15' CHANNEL
STATE
PIER
15' CHANNEL
POINT
JUDITH
GALILEE
BREACHWAY
CONTROL STRUCTURE
SAND ARRESTING WORKS
STATE
JETTIES
A ROAD
15' CHANNEL
WEST SHORE
ARM
BREAKWATER
150'
POINT
JUDITH
B
POINT JUDITH
HARBOR OF
REFUGE
LT.
1500'
LT.
WEST ARM
LT.
MAIN
BREAKWATER
EAST ARM
1200'
LT.
LT.
EAST SHORE ARM
BREAKWATER
PT. JUDITH
LT.
ATLANTIC
OCEAN
BLOCK ISLAND
SOUND

Once this area has been utilized, then future fleet expansion could only be accomodated on the Jerusalem (west) side of the pond. There are plans to construct two heavy duty, deep draft docks north of the State Pier in Jerusalem.

There are also existing berthing and marine repair facilities located in Snug Harbor. Although these facilities have been dredged to 12 feet, access is restricted by water depths of 5 feet in the approach channel. This precludes passage of inshore vessels except at high tide and forces deeper draft offshore vessels to seek repairs at other ports.

ALTERNATIVE PLAN CHOOSEN FOR EVALUATION

The plan of improvement chosen for evaluation in this report involves the following:

1. Wideneing the west bulkhead channel at Galilee from 150 feet to 200 feet.
2. Extending this channel around the bulkhead to the North Basin area at a width of 150 feet and a depth of 10 feet.
3. Widening from 100 feet to 150 feet and deepening from 6 feet to 15 feet the existing recreational channel from the State Pier in Jerusalem to the facilities at Snug Harbor.

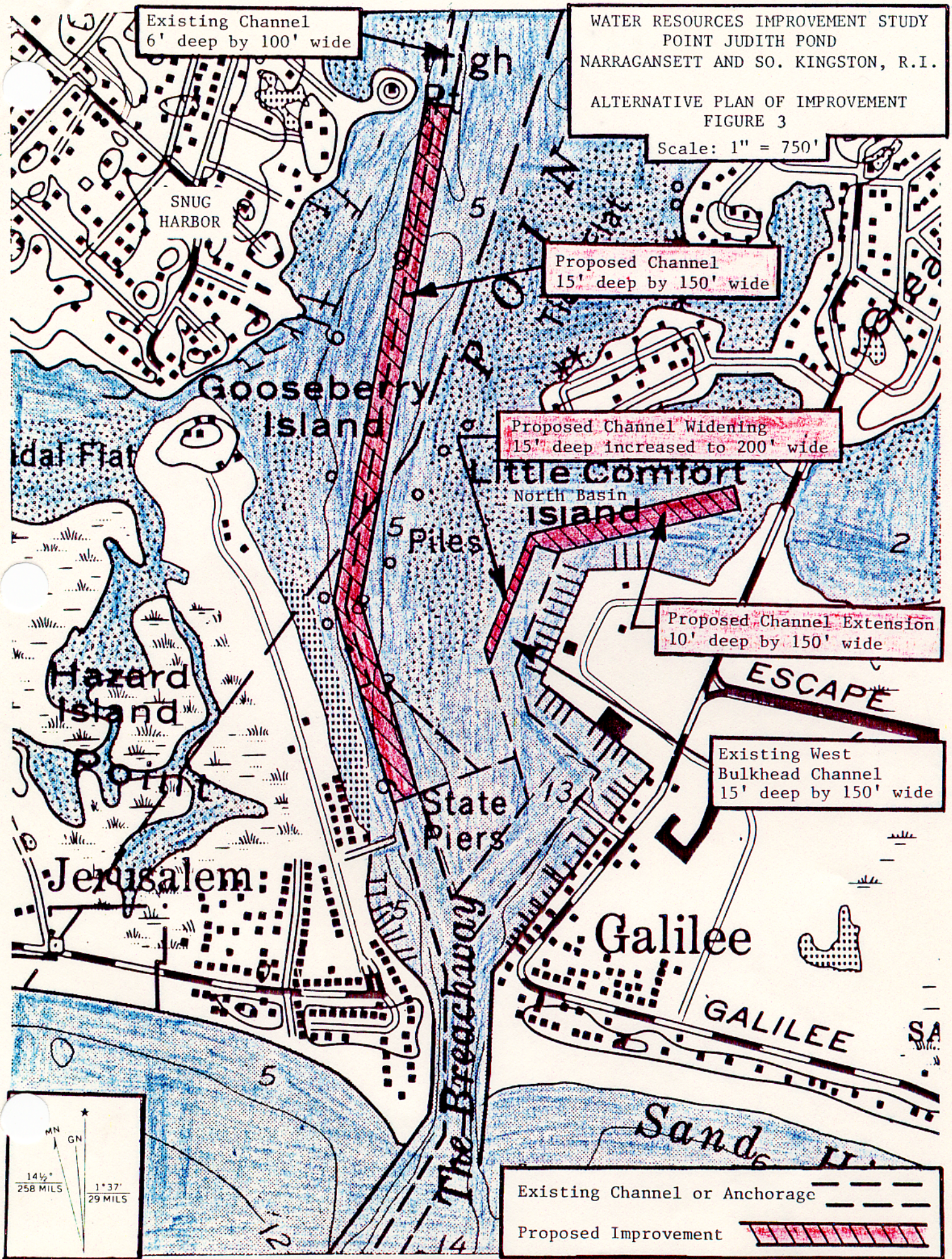
This plan of improvement is shown in Figure 3.

ESTIMATE OF FIRST COSTS OF CONSTRUCTION

The following assumptions were made relative to existing conditions and construction methods:

1. The average existing depth within the North Basin area is 7 feet at mean low water (mlw).
2. The average existing depth alongside the west bulkhead channel is 9 feet at mlw.
3. The average existing depth in the channel to Snug Harbor is 11 feet at mlw.
4. Clean, sandy material will be encountered at all dredging locations.
5. The allowable dredging overdepth will be 1 foot.
6. The disposal of the dredged material will be at nearby beaches.
7. The unit cost for removal of the material will be $7.00 per cubic yard.
8. The study area experiences an annual shoaling rate of approximately 4 percent per year.

Using these assumptions it is estimated that a total of 159,100 cubic yards of clean, sandy material would need to be removed. Removal of the material would likely be accomplished by means of a hydraulic suction dredge with the material pumped to nearby beaches for nourishment. Specific costs are detailed below.


WATER RESOURCES IMPROVEMENT STUDY
POINT JUDITH POND
NARRAGANSETT AND SO. KINGSTON, R.I.
ALTERNATIVE PLAN OF IMPROVEMENT
FIGURE 3
Scale: 1" = 750'
Existing Channel
6' deep by 100' wide
Proposed Channel
15' deep by 150' wide
Proposed Channel Widening
15' deep increased to 200' wide
Proposed Channel Extension
10' deep by 150' wide
Existing West
Bulkhead Channel
15' deep by 150' wide
SNUG
HARBOR
Gooseberry
Island
Little Comfort
Island
North Basin
5 Piles
Hazard
Island
Point
State
Piers
Jerusalem
Galilee
ESCAPE
GALILEE
The Breachway
Sand
Existing Channel or Anchorage
Proposed Improvement

Dredging of Navigation Channels (159,100 c.y. @ $7.00/c.y.)		$1,114,000
Contingencies	(25%)	278,000
	SUBTOTAL	$1,392,000
Engineering and Design	(8%)	111,000
Supervision and Administration	(8%)	111,000
	TOTAL FIRST COST	$1,614,000
Interest During Construction		13,000
	TOTAL INVESTMENT COST	$1,627,000

ESTIMATE OF ANNUAL CHARGES

Annual charges are based on an estimated project life of 50 years at an interest rate of 8-3/8 percent. The annual shoaling rate would result in the accumulation of approximately 7,300 cubic yards of ordinary material within the channels each year. It is estimated that maintenance dredging of this material would need to be performed twice during the project life or once every 20 to 25 years. Disposal areas for the maintenance dredging material are assumed to be the same as those for the initial construction.

Maintenance of aids to navigation would be the responsibility of the U.S. Coast Guard, and specific costs will be obtained in the detailed study phase.

Total annual charges are detailed below.

Interest and Amortization ($1,627,000 X 0.08527)	$139,000
Annual Maintenance Dredging (7,300 c.y. @ $9.00/c.y.)	66,000
Annual Maintenance of Aids to Navigation	2,000
TOTAL ANNUAL CHARGES	$207,000

ESTIMATE OF ANNUAL BENEFITS

Benefits have been estimated for: 1.) efficiencies which will accrue to the existing commercial fleet and 2.) additional fish landings as a result of vessel additions to this fleet. Navigational facilities for the recreational fleet in Point Judith Pond are adequate and the proposed improvements would provide no benefits to this fleet.

The benefits that will accrue to the commercial fleet through project implementation include:

1. Reductions in groundings in the west bulkhead channel the western edge of this channel quickly recedes to between 4.5 and 8 feet. Offshore draggers with lengths of 60 to 95 feet and loaded drafts of 12 to 15 feet sustain damages when they run aground while trying to manuever into berths, offloading docks or around other vessels. Currently 8 offshore draggers berth in this area and with completion of new docks 10 more would be added. These 10 would occupy the space of 12 inshore lobster boats which would be relocated to the North Basin area. Benefits will be measured as the difference in damages for 18 offshore draggers with and without channel widening.

The average repair and maintenance costs for an offshore vessel at Point Judith is $51,500 per year. It is estimated that $2,500 or 5 percent of this total is due to groundings and will continue without the project. With channel widening, grounding damages would be decreased by approximately 80 percent.

Without Project = 18 vessels x $2,500/year = $45,000
With Project = 18 vessels x $2,500/year x 20% = 9,000
Difference = Benefit = $36,000

2. Reduction in delays to offloading and berthing facilities - the 18 offshore draggers make about 30 trips per year and would have to wait for the tide only on inbound trips when loaded. On 50 percent of the trips it is assumed that there would be no tidal delay as their return would coincide with high tide. The other 50 percent of the time they would encounter varying delays averaging 1.5 hours per trip. A 200 foot wide channel would eliminate the delay of waiting to maneuver in and around the docks and vessels in the west bulkhead area. Therefore, fuel and labor savings are estimated as follows:

Fuel: 15 trips x 1.5 hr x 8 gal/hr x $1.20/gal x 18 boats = $3,900
Labor: 15 trips x 1.5 hr x 6 crew x $7.00/hr x 18 boats = $17,000

3. Additional fish landings from fleet growth in the North Basin area - extending the channel around the west bulkhead to the North Basin would make this area available for expansion of the inshore dragger and lobster fleets. The state of Rhode Island plans to construct new docks in this area to accomodate 36 vessels relocated form the west bulkhead area and 32 new vessels. Local interests indicate that of the 32 newly created berths, 12 are expected to be filled with inshore draggers and the remaining 20 with inshore lobster boats. This growth is demonstrated by an increase from 128 vessels in 1974, of which only 74 had berths, to 193 in 1984, all of which have berths. It is estimated that 50 percent of each type of vessel growth would come from new boats and 50 percent from transfers. The rate of new vessel aquisition would be one per year for 6 years for the draggers and one per year for 10 years for the lobsters boats. The benefits which would accrue for the additional landings of these new vessels is calculated as follows.

Inshore draggers: The typical inshore dragger at Point Judith is 40 to 60 feet long with a draft of 6 to 8 feet and a crew of 2 to 3 men. It is assumed that the vessel would make 150 trips per year, landing an average of 6,300 pounds per trip at the average finfish price of $.44 per pound. The National Marine Fisheries Service reports that vessels of this type realize a net return of 20 percent after all expenses are deducted. This results in an

annual net income per vessel as follows:

Trips	X	Landings/Trip	X	Price/lb.	X	% Return	=	Net
150	X	6,300	X	$0.44	X	0.20	=	$83,160

However, since these vessels are added to the fleet at the rate of one per year for the first six years of the project life, this net income figure must be discounted to the present worth at the current discount rate of 8-3/8 percent and then annualized over the 50 year project life. Therefore, the total benefit for future additions to the inshore dragger fleet is $410,300.

Inshore lobster boats: The benefit for increased catch from new boats added upon project completion is calculated in the same manner. The typical inshore lobster vessel currently berthed at Point Judith is 19 to 53 feet in length, has a draft of 3 to 5 feet and a crew of two. The vessel makes about 125 trips per year and averages about 150 pounds per trip at $2.70 per pound. The net return is estimated to be 20 percent. Adding new boats at the rate of one per year for 10 years and using the present worth method as described above results in a benefit of $71,900.

4. Additional landings from fleet growth on the Jerusalem (west) side of the pond - Construction of a deeper, wider channel up the west side of the pond would make this area available for future fleet expansion. Two heavy duty docks are planned for construction at Jerusalem north of the state Marine Experiment Station. These would be used for berthing only and would accomodate 10 to 12 offshore vessels each for a total of 20 to 24 new boats. These facilities would be utilized only after all actual and potential berths at Galilee have been filled. It is assumed that half of the new berths would be utilized by transfers and the remainder by new vessels, but only after complete utilization at Galilee. After project completion new vessels would begin to berth at Jerusalem in year 10 at a rate of one per year until year 20. These offshore draggers would be in the 60 to 95 foot length class and have loaded drafts of 12 to 15 feet. They would make 30 trips per year and land an average of 35,000 pounds of finfish per trip. Using the present worth method as described above, the annualized benefit which will accrue to these 10 new vessels is $301,000.

5. Elimination of delays to repair facilities at Snug Harbor and elimination of repair trips to Newport,R.I. -Controlling water depth in the channel from Jerusalem to Snug Harbor is 5 feet, while at the two marine repair facilities at Snug Harbor it is 12 feet. The resulting problem is that the 16 inshore draggers experience delays in reaching the repair facilities for their semiannual repairs. In addition, because of their 12 foot drafts, the 73 offshore draggers and lobster boats cannot utilize these facilities at all and must travel to Newport for their annual repairs. With this channel deepened to 15 feet, the inshore boats would no longer face delays and the offshore boats would avoid the 4 hour round trip to Newport. Benefits are estimated as follows.

Inshore vessels - Elimination of delays

vessels	x	repairs	x	delay	x	operating costs	=	benefit
16	x	2	x	3 hrs	x	$25/hr	=	$2,400

Offshore vessels - Elimination of trip to Newport

vessels	x	trips	x	hours	x	operating costs	=	benefit
73	x	1	x	4	x	$34/hr	=	$9,900

Total benefits estimated to accrue to the commercial fleet as a result of the evaluated plan of improvement are detailed below.

Category	Benefit
Reduction of Damages in West Bulkhead Channel	$ 36,000
Elimination of Delays to Offloading and Berthing Facilities	20,900
Additional Finfish and Lobster Landings - North Basin	482,200
Additional Finfish Landings - Jerusalem	301,000
Elimination of Delays to Repair Facilities - Snug Harbor	2,400
Elimination of Repair Trips to Newport	9,900
TOTAL ANNUAL BENEFITS	$852,400

COMPARISON OF BENEFITS AND COSTS

The benefit-cost ratio for the evaluated plan of improvement is presented below.

Total Annual Benefits	Total Annual Costs	B/C Ratio	Net Annual Benefits
$852,400	$207,000	4.1:1	$645,400

CONCLUSIONS

As a result of preliminary analyses contained in this report, I find that there is at least one economically and engineeringly viable and environmentally sound plan for construction of a Federal navigation improvement project at Point Judith Pond, Rhode Island. Local and state interests support these navigation improvements which would relieve crowded conditions in and around berthing and offloading areas and make new areas available for expansion of the commercial fleet.

RECOMMENDATIONS

In view of the favorable findings in this report, I recommend further detailed study of navigation improvements at Point Judith Pond, Rhode Island.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
OFFICE OF THE DIRECTOR
83 Park Street
Providence, R.I. 02903

May 17, 1985

Colonel Carl B. Sciple
Division Engineer
Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Dear Colonel Sciple:

RE: POINT JUDITH POND, SECTION 107 STUDY

The Rhode Island Department of Envrionmental Management is pleased to learn that the initial appraisal of the proposed Point Judith Pond improvements has shown positive economic benefits and warrants further study. This project has the support of the area's fishing industry and will increase the level of economic activity in Snug Harbor and Galilee in the towns of South Kingstown and Narrangansett.

The Department of Environmental Management endorses this project and is asking the Corps of Engineers to proceed with the Reconnaisance level study so that we can determine the cost of the Detailed Study and the estimated total project cost. The Department agrees to the eight items of local ooperation and sponsorship which must be met prior to project implementation. Extensions of this agreement beyond the Reconnaisance Study will be contingent upon the availability of funds and town council approval in both towns.

Very truly yours,

Robert L. Bendick, Jr.
Director

RLB:LRW:jc

cc: Frank P. Geremia, DEM/Assistant Director for Operations
Galilee Advisory Committee
Patrick Scheidel
Stephen Alfred
Anna Prager

CONTINUING AUTHORITIES STUDY COST ESTIMATE ($000)

APPROPRIATION TITLE: Construction, general

CATEGORY

CLASS

NAME OF STUDY AND AUTHORITY: Pt. Judith Pond, Narragansett and S. Kingstown, RI Section 107 of 1960 River & Harbor Act, as amended.

SUBCLASS

LINE NO.	SUBACCOUNT NUMBER	SUBACCOUNT TITLE	CURRENT COST ESTIMATE RECON	CURRENT COST ESTIMATE DETAILED PROJECT STUDY FED	CURRENT COST ESTIMATE DETAILED PROJECT STUDY TOTAL	PREVIOUS FEDERAL COST ESTIMATE AND DATE APPROVED ( )	REMARKS
	a	b	c	d	e	f	g
1		Preliminary Planning & Public Contact		15			
2		Surveying	20	10			
3		Design & Cost Estimates		25			
4		Environmental Sampling and Testing	15	25			
5		Environmental/Affects Assessment		15			
6		Economic Studies		10			
7		Social Studies		5			
8		Study Management	15	35			
9		DMMS		10			
10		Preparation of Report		15			
11		Fish & Wildlife Coordination		5			
12							
13							
14		TOTAL:	50.0	170.0			

DATE PREPARED: 5 JUNE 1985

DIVISION: NEW ENGLAND

DISTRICT

REGION

BASIN

ENG FORM 4832-R (TEST), Oct 83

EDITION OF MAY 83 IS OBSOLETE.

(Proponent: DAEN-CWP-A)